STATUS OF THE PLAIN CHACHALACA IN SOUTH TEXAS

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The Plain Chachalaca (*Ortalis vetula mccalli*) is the only member of the family Cracidae in the United States, where it is native to four counties in the Lower Rio Grande Valley of Texas. The species' habitat of dense brushland and its shy, elusive nature make it difficult to observe in the wild. As a result, published information on the status of Texas chachalacas is meager. One report indicated that by 1940, severe reduction of suitable habitat, due to expanding agronomic production, and intense hunting pressure had reduced the population to 3,000 birds (Texas Game, Fish and Oyster Commission, 1945). Other reports (Blankinship, 1963; Evans, 1970; Hobson and Neikirk, 1970) have also referred to the loss of chachalaca habitat in Texas, but quantitative data have been scarce.

Suitable habitat for Plain Chachalacas in the Lower Rio Grande Valley includes isolated tracts of dense brushy woodland on relatively mesic sites. Vegetation in these areas consists predominantly of woody species, including granjeno (*Celtis pallida*), Texas sugarberry (*C. laevigata*), guayacan (*Porlieria angustifolia*), and huisache (*Acacia farnesiana*). Other species often found in these woodlands include Texas ebony (*Pithecellobium flexicaule*), cedar elm (*Ulmus crassifolia*), honey mesquite (*Prosopis glandulosa*), and coma (*Bumelia lanuginosa*). Such habitats were rather widespread in earlier days in the Lower Rio Grande Valley (Clover, 1937) and were inhabited by chachalacas in southeastern Hidalgo County, nearly all of Cameron County, southeastern Willacy County, and a narrow strip along the Rio Grande in Hidalgo, Starr, and Zapata Counties to San Ygnacio (Texas Game, Fish and Oyster Commission, 1945; Aldrich and Duvall, 1955).

In view of the lack of detailed data on the species, I undertook this study, the objectives of which were: 1, to document recent reductions of suitable habitat within the natural range of chachalacas; 2, to determine the present distribution of chachalacas in Texas and compare this with the past distribution; and 3, to obtain a recent population estimate for chachalacas in Texas.

METHODS

The study of the status of Plain Chachalacas in the Lower Rio Grande Valley was conducted in extensive field work from January 1971 to August 1972. The main study area was Santa Ana National Wildlife Refuge, adjacent to the Rio Grande and southeast of McAllen, Texas. In addition, Cameron, Hidalgo, Starr, Willacy, and Zapata Counties were surveyed for determination of the distribution and abundance of chachalacas through extensive vehicular travel.

Distribution and abundance of chachalacas were determined during the 1972 breeding season by using a portable tape recorder and recorded calls to elicit calling responses from the species. Chachalacas call extensively during morning hours of the spring and early summer breeding season and respond readily during these times to recorded calls (at distances of up to 200 yards). The circular area within a radius of 200 yards of the tape recorder comprises 26 acres. This acreage was used in estimating bird densities, with census points established at 0.25 and 0.50 mile intervals adjacent to tracts of suitable habitat. Only those census points at which Plain Chachalacas actually responded to recorded calls were used in calculating density estimates. Each estimate was based on the ratio of calling birds to the acreage sampled.

Calculation of changes in suitable habitat was based on aerial photographs, with the extent of dense woodland, within the known natural range of this species in Texas, being measured with a planimeter. Aerial photographs from 1939 and 1971 were used for Cameron, Hidalgo, Willacy Counties, while for Starr County, where 1939 and 1971 photographs were not available, those from 1950 and 1968 were used.

The total chachalaca population in Texas was calculated using two correction factors; one for acreage known to contain chachalacas but not included in the survey and the other for noncalling birds in the population. All suitable chachalaca habitat could not be sampled during the survey, due to limitations on time and access to private properties. Acreage correction factors were calculated for each county using the ratio of known occupied habitat to the acreage sampled from census points.

Pairs of Plain Chachalacas generally call together during the spring, but my observations indicate that not all of these birds respond to recorded calls. In two instances the numbers of chachalacas inhabiting relatively distinct, isolated tracts were known. On one tract, 22 out of 50 (44 percent) chachalacas responded to recorded calls; on the other, 10 out of 17 (59 percent) responded. A correction factor for noncalling birds was calculated as the ratio of total number of chachalacas present to the number responding to recorded calls. In the two observations, approximately half of the chachalacas responded to recorded calls; therefore, an average correction factor of 2.0 was used to account for noncalling birds in the population.

Other data support the need for a correction factor when counts of calling chachalacas are used to estimate population size. Plain Chachalaca nesting transects indicated an adult breeding population density of approximately 1.2 birds per acre at Santa Ana National Wildlife Refuge. Approximately 0.5 Plain Chachalacas per acre responded to recorded calls at 10 census points on this area. From these data, a correction factor of at least 2.0 was necessary to adequately estimate chachalaca numbers from call counts at Santa Ana National Wildlife Refuge.

RESULTS AND DISCUSSION

The total acreage of suitable chachalaca habitat in the Lower Rio Grande Valley of Texas was severely reduced over the 32-year interval from 1939 to 1971 (Table 1). Highest reductions occurred in Hidalgo and Cameron Counties, where over 75 percent of the suitable chachalaca habitat present in 1939 was removed by 1971. Reduction in habitat occurred at a slower rate in Starr and Willacy Counties. This is particularly significant, as several hundred thousand acres of native brushlands were cleared in the Lower Rio Grande Valley prior to 1939 (Cottam and Trefethen, 1968).

Table 1

Reduction of Plain Chachalaca Habitat in the Lower Rio Grande Valley of Texas, 1939 to 1971.

County	Chachalaca habitat present (acres)				Percent reduction
	1939	1950	1968	1971	
Cameron	40,113			9,841	75.5
Hidalgo	46,524			10,749	76.9
Starr[1]		10,822	6,513		39.8
Willacy	3,356			1,629	51.5
Total[2]	89,993			22,219	75.3

[1] Aerial photographs were not available for Starr County for 1939 and 1971; measurements were obtained from 1950 and 1968 aerial photographs.
[2] Excludes measurements from Starr County.

Major causes of habitat reduction were, and continue to be, expansion in residential development and agronomic production. Continued reduction of suitable habitat will lead to Plain Chachalacas being further restricted to sanctuaries and refuges in the Lower Rio Grande Valley of Texas.

Present distribution of Plain Chachalacas was found to be similar to that of an earlier survey by the Texas Game, Fish and Oyster Commission (1945), with one major difference: completion of Falcon Dam in 1953 inundated about 35 miles of chachalaca habitat along the Rio Grande in Zapata County and cut off the western tip of the natural range. The present distribution of this species in Texas thus extends from Falcon Dam southeastward along the Rio Grande in Starr and Hidalgo Counties to Weslaco, with an extension northeastward to Raymondville and the Gulf Coast in Willacy County (Fig. 1). This area includes the southern edge of Starr and Hidalgo Counties, southeastern Hidalgo County, nearly all of Cameron County, and southeastern Willacy County.

Within their range in Texas, Plain Chachalacas are generally restricted to isolated tracts of dense woodlands adjacent to irrigation reservoirs, canals, resacas (ponds), the Arroyo Colorado, and the Rio Grande. Approximately 71 percent of the remaining suitable habitat in the Lower Rio Grande Valley was in Cameron and Hidalgo Counties. Only about 23 percent and six percent, respectively, of the total remaining suitable habitat for Plain Chachalacas was in Starr and Willacy Counties (Table 2).

Percentages of habitat inhabited by chachalacas sampled during this study were 39.1, 20.7, 16.3, and 29.3 in Cameron, Hidalgo, Starr, and Willacy Counties, respectively. Acreage correction factors were based on these per-

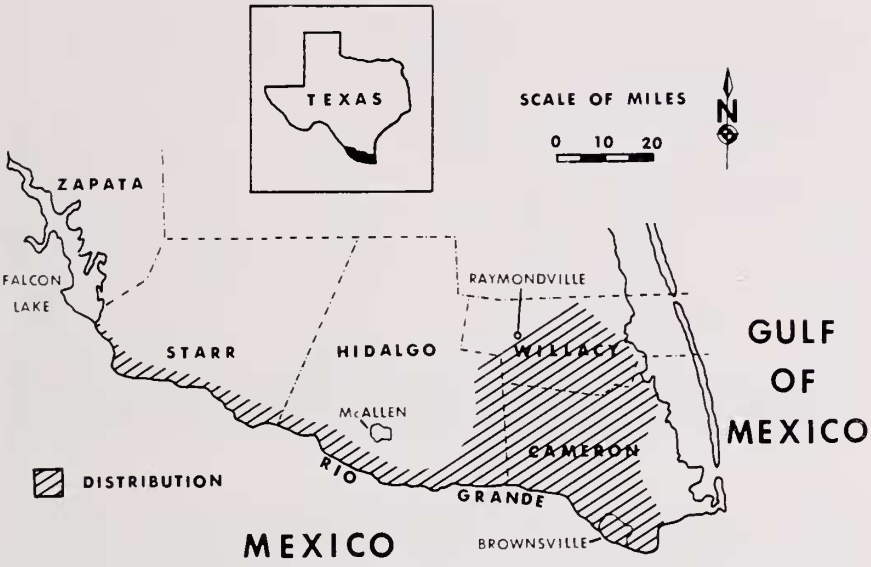

FIG. 1. Distribution of Plain Chachalacas in the Lower Rio Grande Valley of Texas, 1972.

centages and represent the ratio of occupied habitat to censused habitat (Table 2). These calculated values were 2.6, 4.8, 6.2, and 3.4 ($\bar{x} = 3.6$) for the respective counties.

Plain Chachalacas responded to recorded calls at 447 out of a total of 880 census points. At those points where birds responded, density estimates

TABLE 2

ESTIMATES OF SUITABLE HABITAT OF PLAIN CHACHALACAS IN FOUR COUNTIES OF THE LOWER RIO GRANDE VALLEY OF TEXAS, 1971–1972.

	Dense woodland habitat in counties (acres)		
	Total extent[1]	Occupied[2]	Censused[3]
Cameron	9,841	7,547	2,951
Hidalgo	10,749	9,287	1,919
Starr	6,513	1,839	299
Willacy	1,629	555	163
Total	28,732	19,228	5,332

[1] Determined from aerial photographs, all taken in 1971 except for Starr County, which was 1968.
[2] Measured from aerial photographs; chachalacas were known to inhabit these areas.
[3] Estimated at each census point where chachalacas responded during the survey.

TABLE 3

ESTIMATES OF PLAIN CHACHALACA POPULATIONS IN THE LOWER RIO GRANDE VALLEY OF TEXAS, 1972.

County	Chachalacas counted	Population[1] size	Area sampled (acres)	Density (birds/acre)	Total[2] population
Cameron	1,701	3,402	2,951	1.2	8,845
Hidalgo	971	1,942	1,919	1.0	9,322
Starr	71	142	299	0.5	880
Willacy	30	60	163	0.4	204
Total	2,773	5,546	5,332	1.0	19,251

[1] Obtained by multiplying the number counted by the correction factor for noncalling birds, i.e., 2.0.
[2] Obtained by multiplying the number counted by the correction factor for noncalling birds in the population and by an acreage correction factor (see methods).

(Table 3) for Cameron and Hidalgo Counties (1.2 and 1.0 birds per acre, respectively) were more than double those for Starr and Willacy Counties (0.5 and 0.4 birds per acre, respectively). The overall estimate of chachalaca densities in the four counties was 1.0 bird per acre. Plain Chachalacas were more abundant in Cameron and Hidalgo than in Starr and Willacy Counties (Table 3), as well as having a greater density. Overall, 2,773 chachalacas responding to recorded calls were counted in the four counties. After correction for noncalling birds and for chachalaca habitat not sampled, the Plain Chachalaca population was calculated to be 19,251 birds. My best estimate of the total chachalaca population in Texas is between 18,000 and 21,000 birds. An earlier estimate of only 3,000 chachalacas in Texas (Texas Game, Fish and Oyster Commission, 1945) is questionable, as it was apparently based on little quantitative data. The shy, elusive nature of this species has undoubtedly contributed to low estimates.

The overall trend in Plain Chachalaca numbers in Texas is unknown. However, a guess would be that there has been a slight increase in recent years despite the continued removal of suitable habitat (Table 1). Several factors may have contributed to this theoretical increase. Artificial feeding of chachalacas living in close proximity to people has undoubtedly increased their winter survival. Intensive land use has lowered predator numbers on some areas, resulting in diminished loss to this source of mortality. Also, Plain Chachalacas have been transplanted with some success within their natural range since 1959 (Blankinship, 1963; Evans, 1970; Hobson and Neikirk, 1970). Finally, this species has apparently adapted well to living in relatively small (1–5 acre) tracts of dense, woodland vegetation. This adaptability may facilitate further transplanting to additional, suitable, isolated tracts in Texas.

SUMMARY

The extent of habitat reduction, distribution, and population size of the Plain Chachalaca were studied in the Lower Rio Grande Valley of Texas. Suitable habitat, i.e., dense woodlands, has been severely reduced over much of the southern Texas range of this species. Expansion in agronomic production and residential development contributed largely to this reduction in habitat. The distribution of chachalacas in Texas includes much of Cameron County and portions of Hidalgo, Starr, and Willacy Counties. Density and abundance estimates were higher in Cameron and Hidalgo than in Starr and Willacy Counties. The overall density estimate for areas containing Plain Chachalacas in the Lower Rio Grande Valley was 1.0 bird per acre.

The total Plain Chachalaca population in Texas was estimated at between 18,000 and 21,000 birds. Trends in population size remain unknown, although artificial feeding by local residents, reduced predatory pressures, and initiation of transplanting programs may be responsible for slight increases in Plain Chachalacas in recent years. Additional transplanting of birds to suitable, unoccupied areas within their natural range may benefit chachalaca populations in Texas.

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